

Figure 1

A. Rig open reading frame nucleotide sequence

atgccggaacagagtaacgattaccgcgtggtggttcggggcgggcggcgtgggcaag
agctcgctggtgctgcgcttcgtgaagggcacgttcgcgacacctacatccccaccatc
gaggacacctaccggcaggtgatcagctcgacaagagcgtGtgacgctgcagatcacac
gacaccacggcagccaccagttcccgccatgcagcgcctgtccatctccaagggccac
gcctcatcctggtgtctccgtcaccagcaagcagtcgctggaggagctggggcccatc
tacaagctcatcgtgcagatcaagggcagcgtggaggacatccccgtgatgctcgtgggc
aacaagtgcgatgagacgcagcgggaggtggacacgcgcgagggcagggcggccag
gagtggaaagtgcgcttcatggagacctcgcccaagatgaactacaacgtcaaggagctc
ttccaggagctgctgacgctggagacgcgcgggaacatgagcctcaacatcgacggcaag
cgctccgggaagcagaagagagacagaccgcgtcaagggcaaatgcaccctcatgtga

B. Rig amino acid sequence

MPEQSNDYRVVFGAGGVGKSSLVLRVKGTRDITYPTIEDTYRQVISCD
KSVCTLQITD TTGSHQFPAMQRLSISKGHAFILVFSVTSKQSLEELGPIYKLIV
QIKGSVEDIPVMLVGNKCDETQREVD TREAQAVAQEWKCAFMETSAKMN
YNVKELFQELLTLETRRNMSLNIDGKRSGKQKRTRDRVKGKCTLM

Figure 2

| | | |
|-------|---|-----|
| Rig | mpeqsndyrvvvf----- | 13 |
| Noey2 | mgnasfgskeqkllkrlrllpallilrafkphrkirdyrvvv- | 43 |
| RalA | maankpkgqnsalahlkvimv----- | 20 |
| Rap1A | mreyklvvl----- | 9 |
| Rap2A | mreykvvl----- | 9 |
| HRas | mteyklvv----- | 9 |
| RRas | mssgaasgtgrgrprggpgpgdpppsethklvv----- | 35 |
| Rheb | mpqksrkiail----- | 12 |
| Rig | GAGGVGKSSlvrfrvkgtfdrdtYIPTIEDTYrqviscdksvctl | 57 |
| Noey2 | GTAGVGKSTllhkwasgnfrheYLPTIENTYcqllgcshgvlsl | 87 |
| RalA | GSGGVGKSAltqlqfmydefvedYEPTKADSYrkvvldgeevqi | 64 |
| Rap1A | GSGGVGKSAltqvfvqgifvekYDPTIEDSYrkqvevdcqqcml | 53 |
| Rap2A | GSGGVGKSAltqvftgtgfiekYDPTIEDFYrkeievdsspsvl | 53 |
| HRas | GAGGVGKSAltigliqnfhvdeYDPTIEDSYrkqvvidgetcll | 53 |
| RRas | GSGGVGKSAltigfiqsyfvdsYDPTIEDSYtkicsvdgiparl | 79 |
| Rheb | GYRSVGKSSltiqfvegqfvdsYDPTIENTFtklitvngqeyhl | 56 |
| Rig | qitDTTGS HQfpamqrslsiskghafilvsvtskqsleelgpiy | 101 |
| Noey2 | hitDSKSGDGNralqrhviarghafvlvsvtkketleelkafy | 131 |
| RalA | dilDTAGQEDYaairdnyfrsgegflcvfsitemesfaatadfr | 108 |
| Rap1A | eilDTAGTEQftamrdlymkngqgfalvysitaqstfndlqdlr | 97 |
| Rap2A | eilDTAGTEQfasmrldiyknngqgfvlvslvnqgsfqdikpmr | 97 |
| HRas | dilDTAGQEEysamrdqymrtgegflcvfainntksfedihqyr | 97 |
| RRas | dilDTAGQEEfgamreqymraghgflvfaindrqsfnegklf | 123 |
| Rheb | qlvDTAGQDEysifpqtysidingyilvsvtsiksfevikvih | 100 |
| Rig | klivqikgsvedipmvlv-----NKCDetqrevdtreaqav | 138 |
| Noey2 | elickikgnnlhkfpivlv-----NKSDdthrevalndgatc | 169 |
| RalA | eqilrvkedenvpflv-----NKSDledkrqvsveeakn | 144 |
| Rap1A | eqilrvkdtedvpmilv-----NKCDledervvgkeggqn | 133 |
| Rap2A | dqilrvkryekvpvlv-----NKVDleserevsssegra | 133 |
| HRas | eqikrvkdsddvpmvlv-----NKCDlaartvesrqaqdl | 133 |
| RRas | tqilrvkdrddfpvvlv-----NKADlesqrqvprseasa | 159 |
| Rheb | gklldmvgkvqipimlv-----NKKDlhmervisyeegka | 136 |
| Rig | aqewkcaf-----ETSAkmnynvkelfqelltletrrnmslnidg | 179 |
| Noey2 | amewncaf-----EISaktdvnvqelfhmllynkkkpttqlgepe | 210 |
| RalA | raeqwnvnyv-----ETSAktranvdkvffdlmreirarkmedskek | 186 |
| Rap1A | larqwcncaf-----ESSAkskinvneifydlvrqinrktpvekkkp | 176 |
| Rap2A | laeewgcpfm-----ETSAksktmvdelfaeivrqmnyaaqpdkddp | 175 |
| HRas | arsygipyi-----ETSAktrqgvedafytlvreirqhklrklnp | 174 |
| RRas | fgashhvayf-----EASaklrlnvdeafeqlvravrkyqegelp | 201 |
| Rheb | laeswnaaf-----ESSAkenqtavdvfrriileakmdgaasqgk | 178 |
| Rig | krsgkqkrtdrvkgk-----//----CTLM | 198 |
| Noey2 | kksqmpntteklldk-----//----CIIM | 229 |
| RalA | ngkkkrkslakrirer-----//----CCIL | 206 |
| Rap1A | kkks-----//----CLLL | 184 |
| Rap2A | ccsa-----//----CNIQ | 183 |
| HRas | desgpgcmsck-----//----CVLS | 189 |
| RRas | ppsaprkkgggcp-----//----CVLL | 218 |
| Rheb | ss-----//----CSVM | 184 |

Figure 3

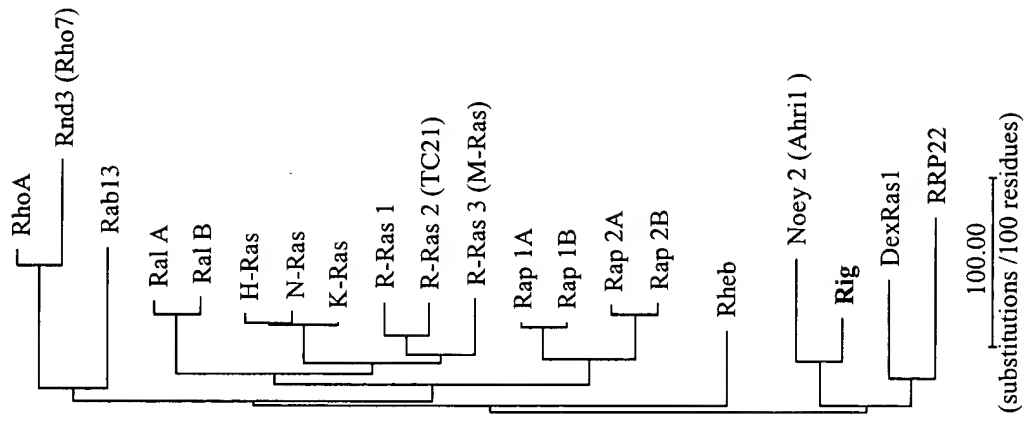


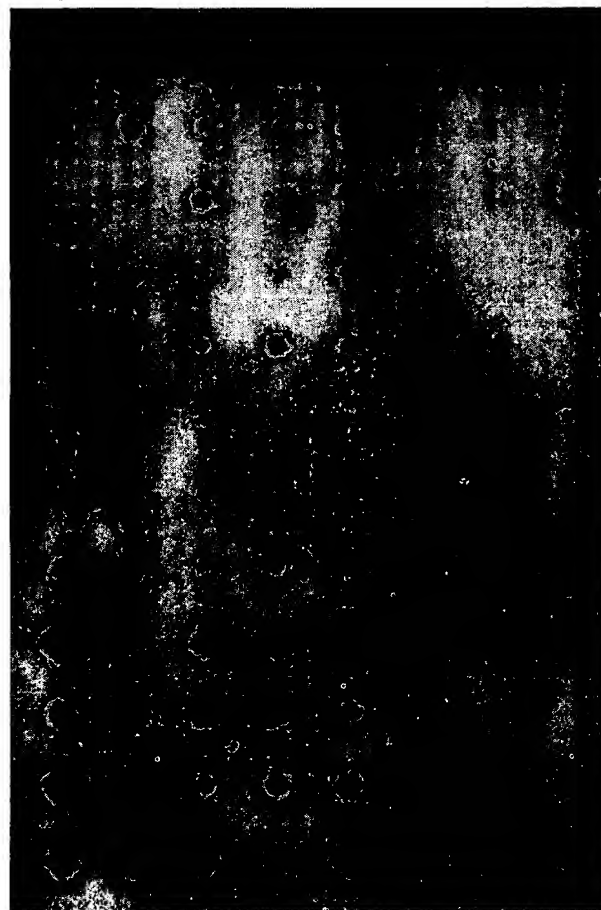
Figure 4

(A)



brain
heart
sk mus
colon
thymus
spleen
kidney
liver
sm int
placenta
lung
pbl

(B)



(C)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---------------------------|-------------------|-------------------|--------------------------|------------------|-------------------|-----------------------------|----------|----------------|----------------------------------|--------------|------------------|
| A | whole brain | cerebellum, left | substantia nigra | heart | esophagus | colon, transverse | kidney | lung | liver | leukemia, HL-60 | fetal brain | yeast total RNA |
| B | cerebral cortex | cerebellum, right | nucleus accumbens | aorta | stomach | colon, descending | skeletal muscle | placenta | pancreas | HeLa S3 | fetal heart | yeast tRNA |
| C | frontal lobe | corpus callosum | thalamus | atrium, left | duodenum | rectum | spleen | bladder | adrenal gland | leukemia, K-562 | fetal kidney | E. coli rRNA |
| D | parietal lobe | amygdala | pituitary gland | atrium, right | jejunum | | thymus | uterus | thyroid gland | leukemia, MOLT-4 | fetal liver | E. coli DNA |
| E | occipital lobe | caudate nucleus | spinal cord | ventricle, left | ileum | | peripheral blood leukocytes | prostate | salivary gland | Burkitt's lymphoma, Raji | fetal spleen | poly (A) |
| F | tongual lobe | hippocampus | | ventricle, right | ileocecum | | lymph node | testis | mammary gland | Burkitt's lymphoma, Daudi | fetal thymus | human Cα-1 DNA |
| G | p. g.* of cerebral cortex | medulla oblongata | | inter-ventricular septum | appendix | | bone marrow | ovary | | colorectal adenocarcinoma, SW680 | fetal lung | human DNA 100 ng |
| H | pons | putamen | | apex of the heart | colon, ascending | | trachea | | | lung carcinoma, A549 | | human DNA 500 ng |

* paracentral gyrus

U251
TC32
TC106
A673
SH5Y
NE115

28S

rig

U251

Figure 6

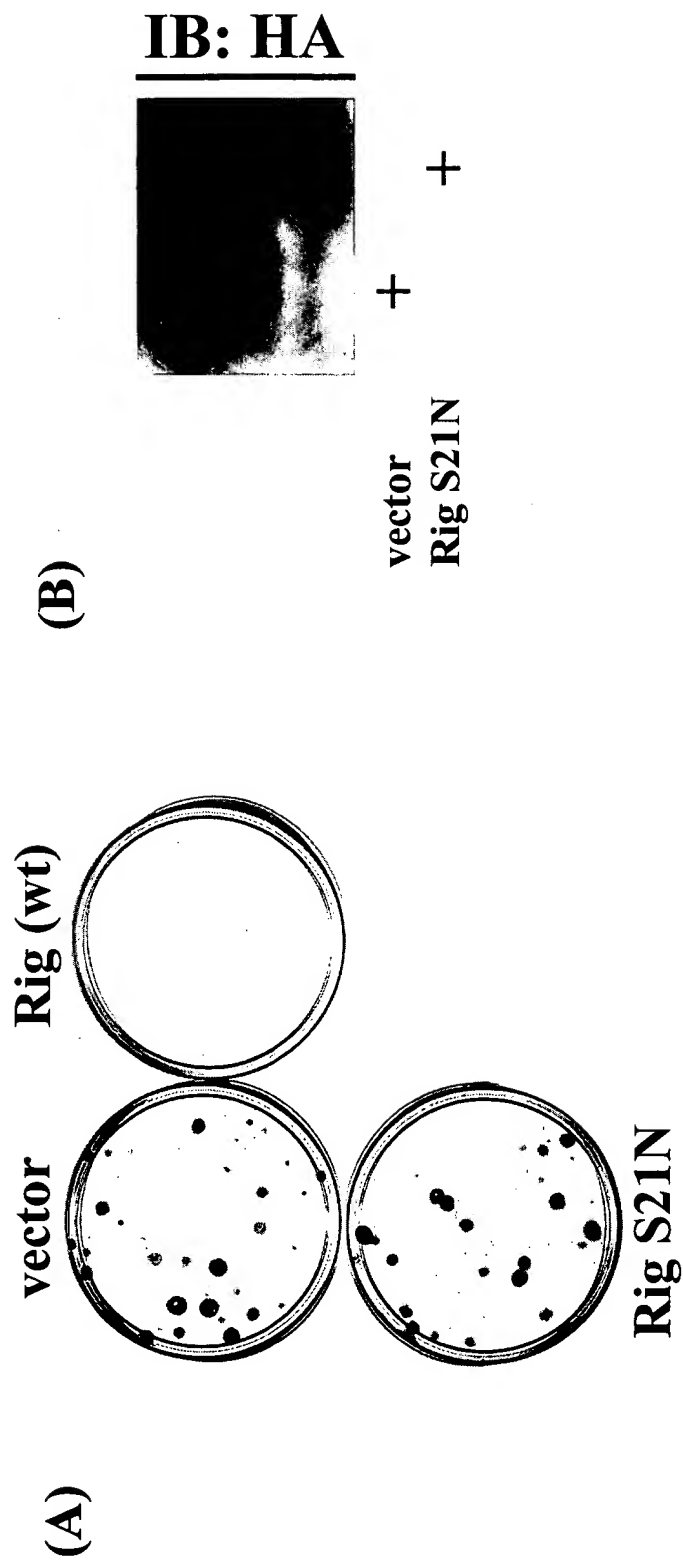


Figure 7

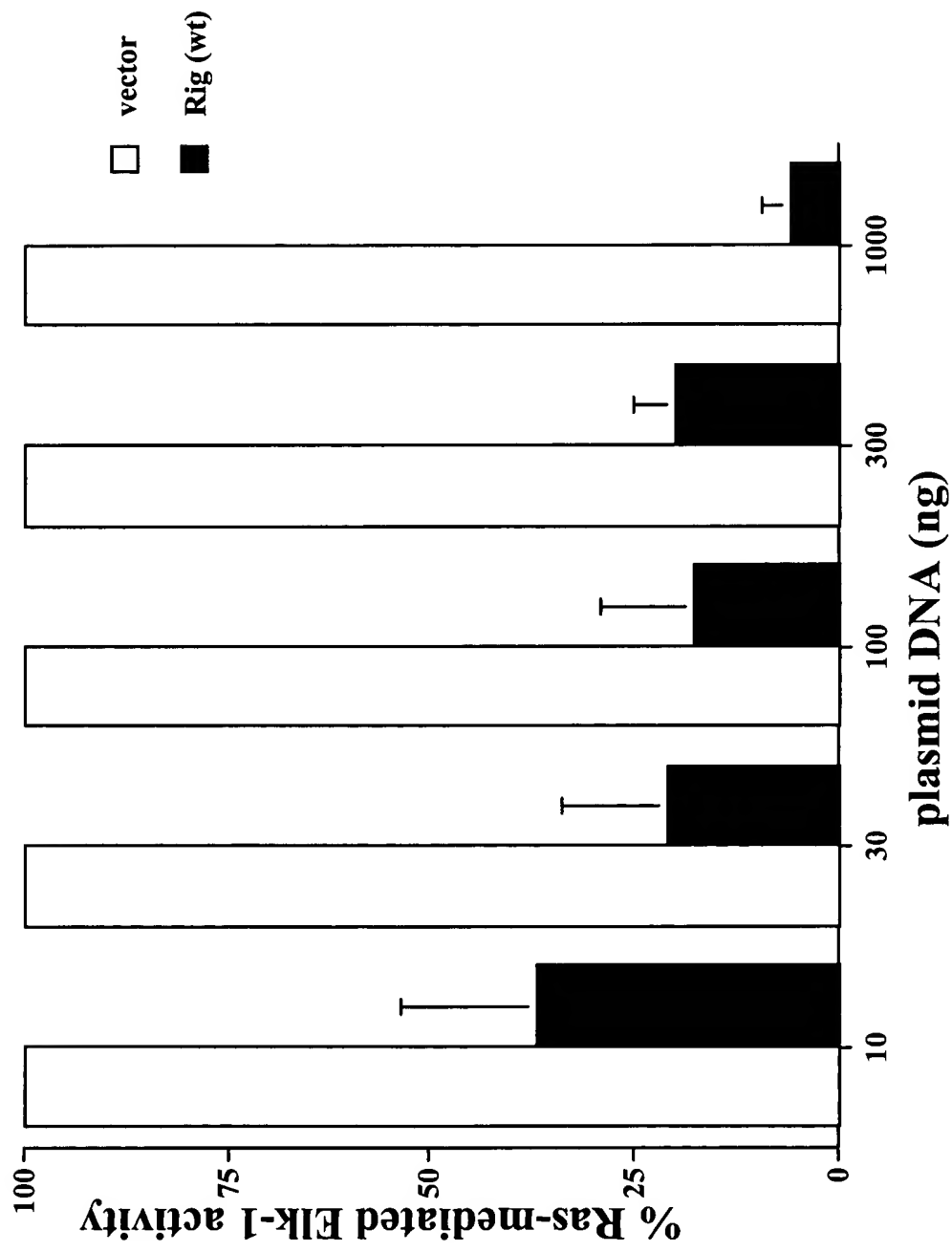


Figure 8

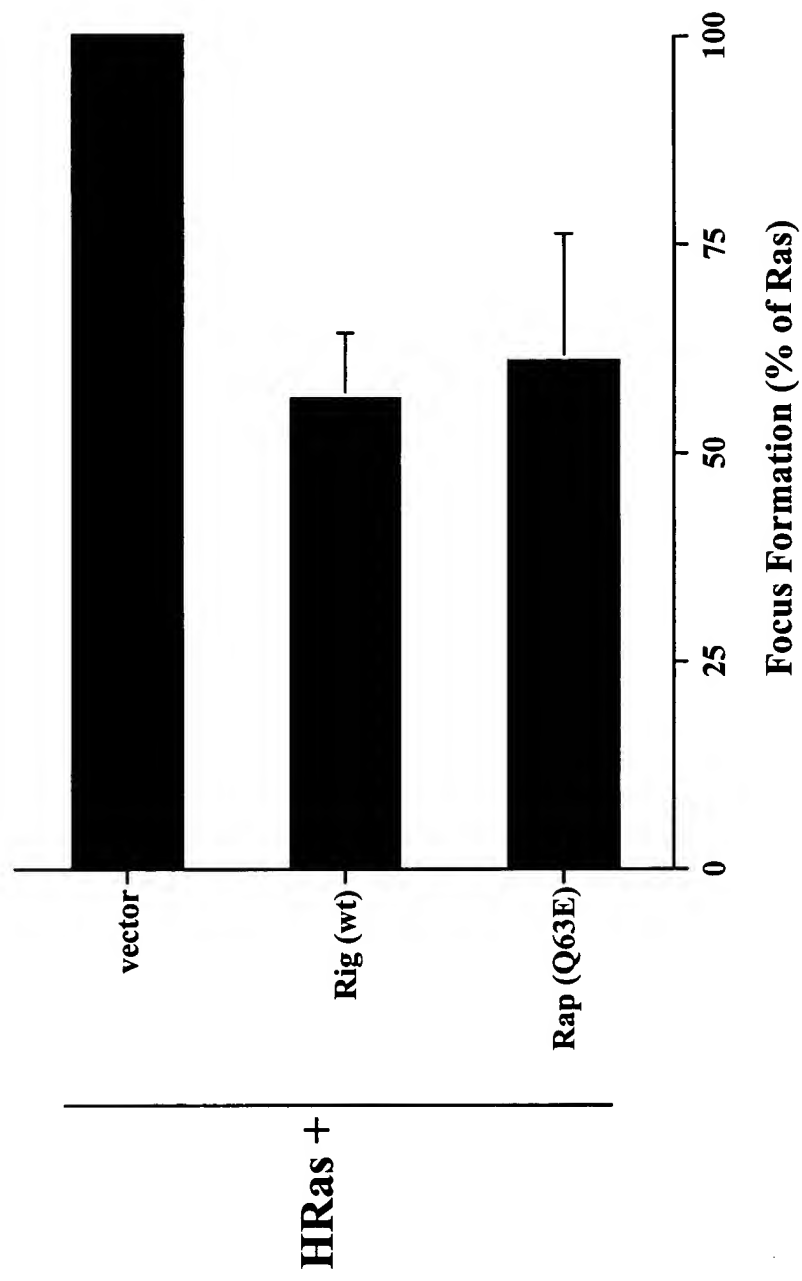


Figure 9

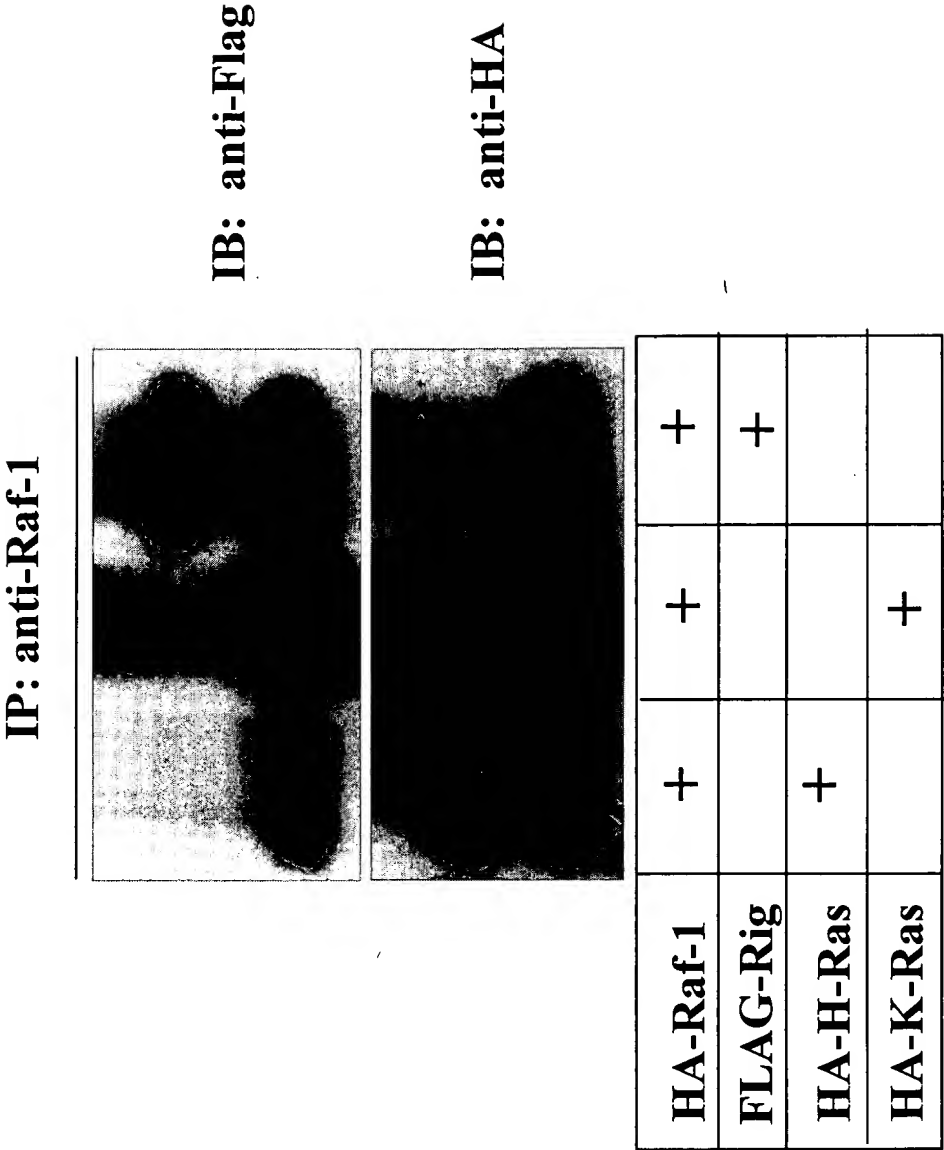


Figure 10

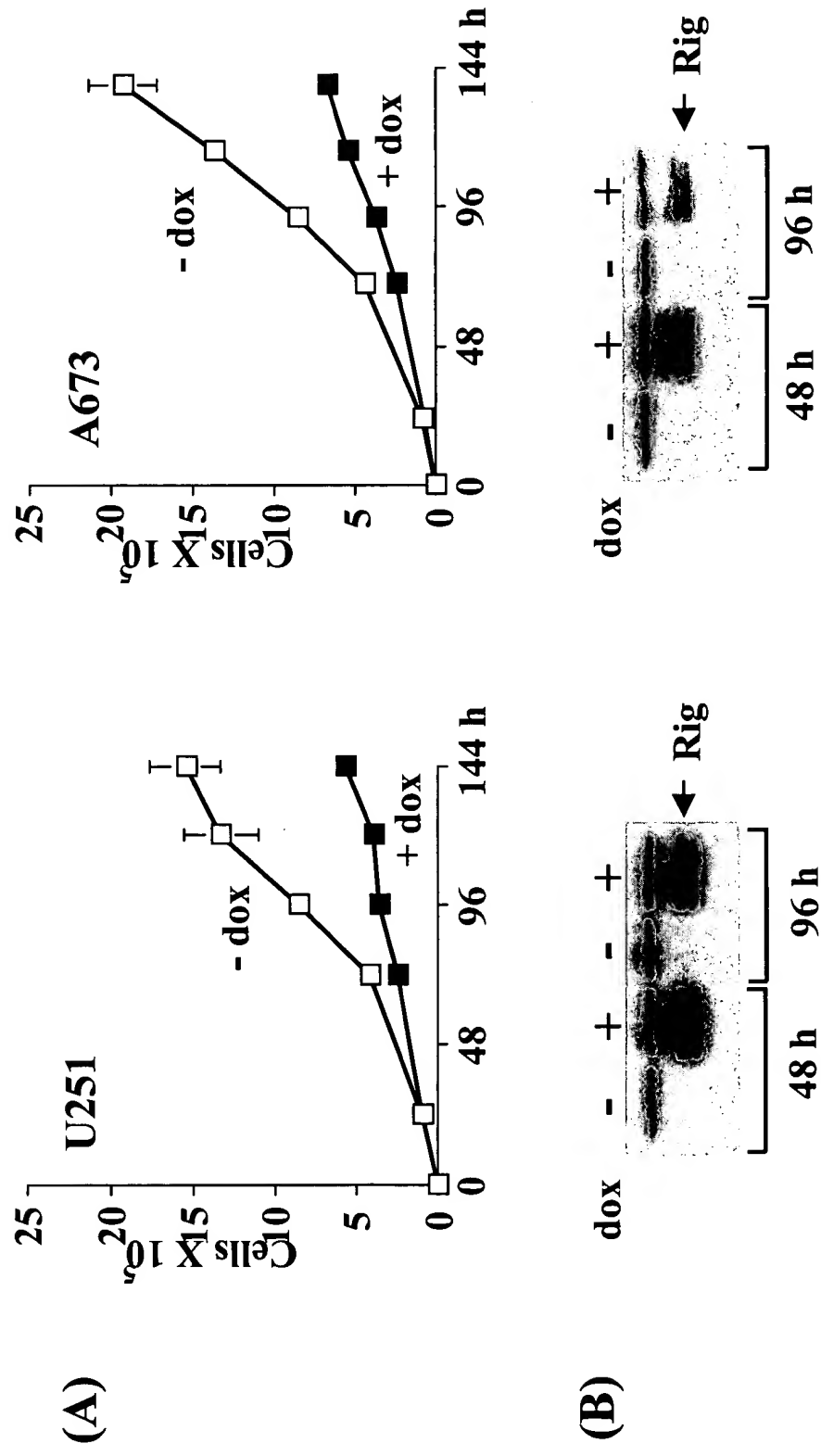


Figure 14

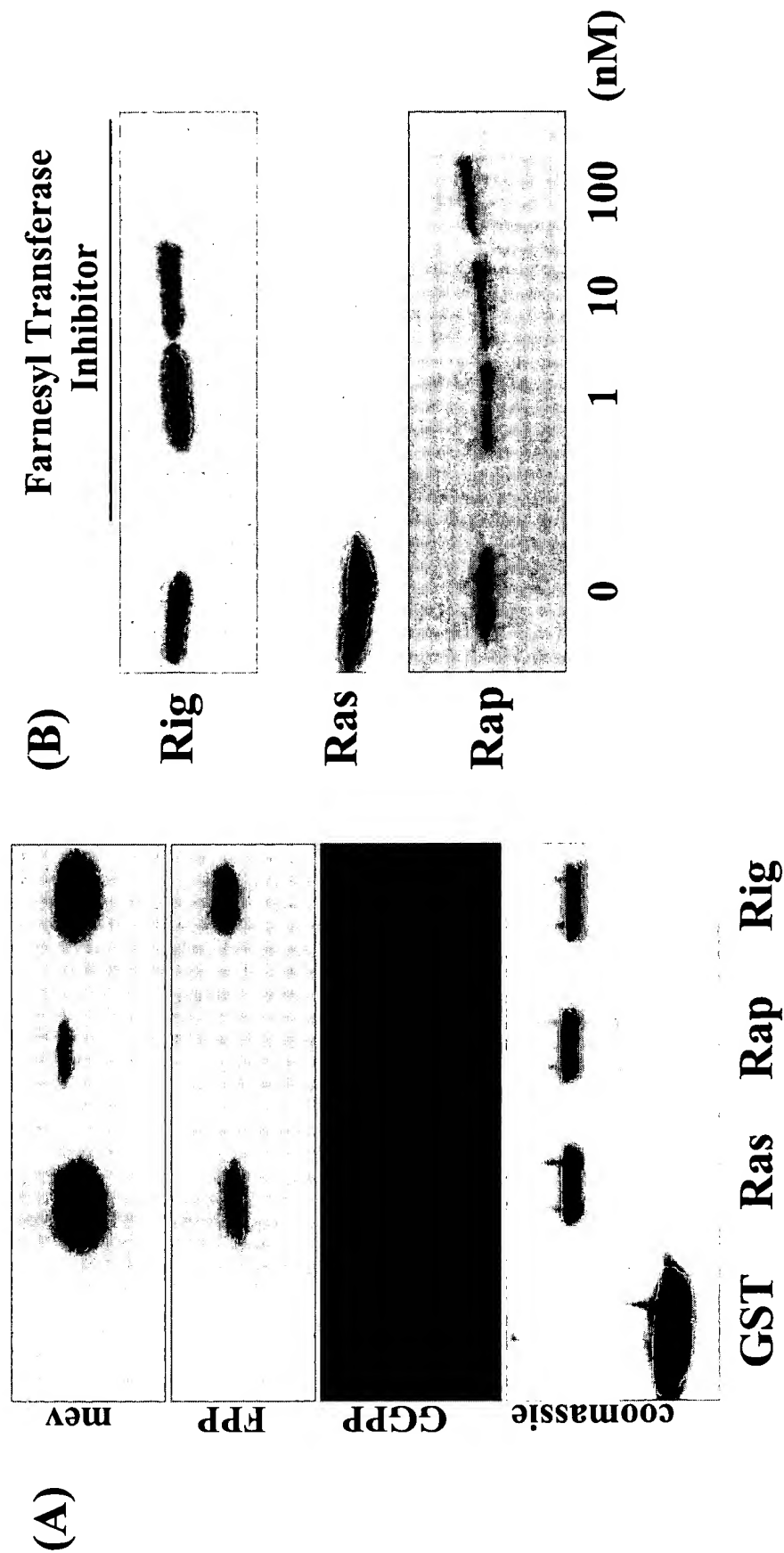


Figure 15

